



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

an elevation of 10,250, and Vancouver 8,500. Many other peaks in the same region are as elevated as Cook and Vancouver, but St. Elias is higher than any of its immediate neighbors.

"The more important glaciers and mountains in the region explored were named principally in remembrance of distinguished American geologists who are no longer living. One grand mountain, some thirty miles northeast of Elias, and probably only second to it in height, was named in honor of Sir William Logan, formerly Director of the Geological Survey of Canada. Several lofty spires to the east of Mount Logan were named after the vessels of the navy and the revenue marine that have become celebrated for their voyages in Behring Sea and the Arctic Ocean."

The results of the expedition will be presented to the National Geographic Society some time in November, and as soon after as practicable will be published by the Society in the "National Geographic Magazine."—*Philadelphia Ledger*.

GEOLOGY AND PALEONTOLOGY.

The Transitional Drift of a Portion of Northern Iowa.

—In a paper by the present writer on "The Glacial Drift and Loess of a Portion of the Northern Central Basin of Iowa,"¹ which appeared in the *NATURALIST* a few months since, there was included in the "Upland Drift" an upper silt-like member.

This member was not at that time recognized as a distinct formation, but upon more recent investigations and study is now apparently demonstrated to be. A description of this, we believe heretofore unrecognized, division constitutes the basis of the present paper.

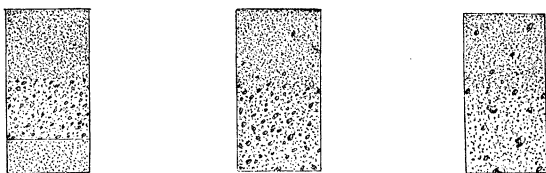
The area here under consideration includes that portion of Northern Iowa lying east of the double moraine, which enters the State from the north; and west of the Loess belt, which borders the Mississippi on the east. This formation is developed over broad areas of surface; and where best developed and most easily defined the contour of the surface is usually of a subdued undulatory type.

¹ In this paper no allusion was intentionally made (except such as became necessary in speaking of the Valley Drift) to the deposits of the glacial epoch, during which the double moraines were formed. In this paper we considered as subdivisions of the "later glacial epoch" both the Loess and Valley Drift. These two formations are, however now shown to represent a subsequent period. The Valley Drift was derived mostly from the materials composing the double moraines, and the Loess appears to mark the highest stage of water during the occupation of the first moraine.

It also sometimes occupies the surface of broad, shallow valleys which are in part filled with Valley Drift.² When this occurs, however, it is shown to have been laid down at a period subsequent to that of the upland.

This sheet, as seen developed in the region under consideration, is, for the greater part, of a quite homogeneous silt-like composition, of a grayish-black color, and attains an average thickness of from one to two feet. In places this formation contains well-rounded, smooth, and sometimes striated pebbles of Drift origin, and well-rounded, sometimes angular boulderettes. At other times neither pebbles nor boulderettes enter into this formation as component elements.³

The three following cuts will give a good idea of the stratigraphical relation which this formation sustains to the subjacent Drift, as well as give a conception of the relative nature of the lithological character of the two divisions.



FIGS. 1-3.—Sections of Transitional Drift and Common Drift, illustrating the relative position and lithological character of the two formations.

1. Section in road cut, in gently undulating prairie region, six miles west of Charles City. The upper bed, which is two feet in thickness, represents the Transitional Drift, and is of a fine homogeneous composition, containing, so far as observed, neither pebbles nor boulderettes. This passes quite abruptly into the underlying gravelly Drift, which is one and one-half feet in thickness. The lower bed (nine inches thick) is fine siliceous sand.

2. Section in road cut, about two miles north from Rockford, and three-fourths of a mile distant and more than one hundred feet (estimated) above the Shellrock River. The higher bed, a little more than two feet in thickness, is Transitional Drift, the lower part of which is slightly yellow, and contains some rounded pebbles. This passes quite rapidly into the coarse Drift gravel below.

3. A general section of the two sheets under consideration. The upper deposit contains some pebbles and boulderettes, and passes, more or less rapidly, into the underlying Drift or Till. This member

² This is well illustrated in Fig. 2 of the above-mentioned paper.

³ We have observed this sheet well developed in portions of Southeastern Iowa.

appears to be an intermediate or transitional formation (hence the name Transitional Drift which I have applied) between the true Drift below and the Loess, which occupies a chronological horizon above.

"If I discern correctly, the Transitional Drift is distinguishable from true Drift (1) by the almost entire absence of clay; (2) the relatively small amount of gravel and bowlders; (3) by the looseness and more homogeneous nature of its earthy base; and (4) by its stratigraphical position and color. It is also distinguished from Loess mainly by its looseness, color, almost absence of clay, and less homogeneous character, as well as by its containing both gravel and bowlderettes.⁴

It is not infrequently the case that the constituent elements composing the true Drift and the Transitional Drift pass into one another with such gradual and imperceptible gradation as to make it impossible to designate just where the division line separating the two formations should be drawn. At other times, however, the line of demarkation or separation between the two sheets is abrupt and sharply defined.

The material of the Transitional Drift is also sometimes seen to so imperceptibly graduate into the Loess as to make it a hopeless task to undertake to indicate just where the line separating the two deposits should be placed.

It is believed that the component elements of this formation were derived mainly from the less coarse material contained within the glacial ice, which material, upon the melting of the ice, was distributed, with more or less uniformity, by its waters over large areas covered by the Drift, which had accumulated under the glacier.

It is manifest, upon consideration, that the finer material held in suspension by the glacial waters would not settle down so soon as the coarser material forming the Transitional Drift, but would be borne along by the more or less rapidly-moving floods, and finally be deposited in the form of sediment as the waters collected and formed into lake-like expansions along the axis of drainage.

This sediment we conceive to be our typical Loess, which we believe to be analogous to the Transitional Drift, only modified by

⁴ Prof. Torrell has distinguished a Drift sheet, apparently somewhat similar to this, in the hilly regions of Eastern America (it is also recognized in Sweden), which has been designated "Upper Till."

"It is held to be distinguished from true Till (1) by its looseness; (2) by the usually large size and angular form of its rock fragments; (3) by the more sandy and porous character of the earthy base; and (4) by the higher oxidation of its iron compounds."

"This is regarded as having been the material embraced *within* the glacial ice or borne on its surface, and by its melting let loosely down upon the true Till formed beneath the ice."—*T. C. Chamberlin, U. S. Geological Report, 1881-82, p. 297.*

repeated washing processes, until it finally reached its present remarkable extent and purity.

The numerous bowlders observed in the region under consideration are thought to belong the Drift, and also to represent in part the coarser blocks held *within* the glacial ice.—CLEMENT L. WEBSTER, *Charles City, Iowa.*

Synopsis of American Carbonic Calyptræidæ. By Charles R. Keys (Proc. Acad. Nat. Sci. Phila., 1890, pp. 150-181).—This paper is a complete résumé of all that is at present known concerning the American Carbonic shells, hitherto commonly referred to Conrad's genus *Platyceras*. There are also incorporated many new observations derived from an exhaustive study of a large amount of excellent material collected during the past few years, besides an examination of nearly all the types of the different forms. Of a single specimen more than three hundred specimens were obtained from a single locality, for the purposes of determining the limits of variation. While it may be regretted that the familiar name established by Conrad nearly half a century ago is given up, it is thought the change will be a great advantage in the consideration of this group, since it has long been regarded by paleontologists who are familiar with the recent shells that Conrad's group actually formed a part of *Capulus* of Montfort. The habits of the group are discussed, and the attachment of the shells to Crinoids, by which their change of form is attained, is illustrated with many examples. It must be borne in mind that the relation of the two forms does not imply that the Gastropod was parasitic in its habits, as has been generally regarded, but that the mollusc, though for the greater part of its life stationary, probably fed on the excrement of the Crinoid. The remarks upon geographic and geologic distribution have a wide application. The relations of the forms from the Burlington and Keokuk rocks are very significant in its bearing upon the true connection of the two formations. All known forms and new ones are fully described, and a plate of twenty-three figures will aid the student in his study of this interesting family.—H. G. GRIFFITH, M.D., *Burlington, Iowa.*

An Extensive Deposit of Phosphorite Rock in Florida.—Prof. E. T. Cox has recently investigated a deposit of this character which extends from Middle to Northern Florida in beds of probably upper Eocene or Vicksburg age, as determined by Prof. Eugene Smith and others. Professor Cox states that "while the Florida phosphate, like apatite, is almost a pure phosphate of lime, yet it differs so widely

from that mineral in its physical characteristics that I have taken the liberty to give it the name of 'Floridite.' It occurs as a rock that had long been mistaken as a limestone, but unlike a bedded limestone it is mostly in segregated masses, some of which will weigh a ton or more. On the Eagle Phosphate Company's property, of which I made a special examination, a shaft was commenced on an outcrop and sunk to the depth of $41\frac{1}{2}$ feet before it reached the bottom of the solid 'Floridite.' In a paper which I read at the Indianapolis meeting of the A. A. A. S. I gave it as my opinion that the Florida phosphate is a mineralization of an ancient guano. It differs entirely from the coprolite and gravel phosphates of the Carolinas, and the Peace River phosphate gravel or conglomerate phosphates that are found in the bed and shores of Peace River, in the southern part of Florida. The 'Floridite,' or rock phosphate, follows the trend of the Gulf of Mexico, and I have traced it from the southern part of Citrus county as far north as Madison in Madison county, and over a width of country fully twenty miles wide. I do not mean to say that it forms a continuous bed over this area, for there are many breaks where small patches only exist. The rock is found in many places cropping out, but is usually covered with from one to ten feet of sand. It is quarried by stripping off the covering of sand and breaking down the phosphate after the manner of quarrying stone.

" 'Floridite' will average 80 per cent. of bone phosphate of lime. It is worth in the European market from \$25 to \$30 per ton, or, 33 to 38 cents per unit.

" I consider the discovery of this phosphate rock, which has heretofore been taken to be a limestone, as one of great importance to Florida and the entire Union, both on account of its commercial value and its stimulus to profitable agriculture."

MINERALOGY AND PETROGRAPHY.¹

Petrographical News.—The placing of the diabases among the intrusive rocks has for some time seemed a questionable proceeding to many petrographers. They so often occur as flows between sedimentary strata, and frequently apparently as surface flows, that it would appear more logical to place them among the effusives. Brauns² has lately described a diabase from Quotshausen in the valley of the Perf,

¹ Edited by Dr. W. S. Bayley, Colby University, Waterville, Me.

² *Zeits. d. Deutsch. Geol. Ges.* XLI., 1890, p. 491.